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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/228,445	01/11/1999	WILLIAM W. FREITAG JR.	5000-74400	8570

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EXAMINER

NGUYEN, PHUONGCHAU BA

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 07/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/228,445

Applicant(s)

FREITAG ET AL.

Examiner

Phuongchau Ba Nguyen

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4-17-03 RCE.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "EACH functional unit comprising a programmable state register"(claim 6, lines 6-7; claim 11, lines 6-8) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipate by Marchok (6,118,758).

Marchok (6,118,758) discloses a serial communication controller for transmitting and receiving a serial data stream including multiple serial data channels (connections between the timing and control logic 340, fig.6) having portions which alternate in time with respect to each other, comprising:

a plurality of functional units (115, 120, 125, 130; fig.6) configured to operate in series according to a serial communication protocol, wherein each functional unit is configured to perform a different specific function of said

serial communication protocol, and wherein the plurality of functional units operates in time sequence upon the portions of the multiple serial data channels {col.7, lines 5-8}; and

wherein the plurality of functional units is configured to perform said serial communication protocol on the multiple serial data channels {col.7, lines 3-5}.

Claim Rejections – 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marchok (6,118,758) in view Rowett (5,991,817).

Marchok does not explicitly disclose the claimed feature. However, in the same field of endeavor, Rowett discloses wherein the serial data stream

includes digital data of only one of the multiple serial data channels at any given time, and wherein each of the multiple serial data channels is assigned a periodically recurring time segment and is active during its assigned time segment, and wherein the plurality of functional units operates upon the active serial data channel {Rowett, col.11, lines 60-62}. Therefore, it would have been obvious to an artisan to apply Rowett's teaching to Marchok's system with the motivation being to keep the maximum overhead of the controller to a minimum.

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marchok (6,118,758) in view Kurnick (5,721,726).

Regarding claim 3:

Marchok does not explicitly disclose wherein each functional unit is a state machine having a set of unique operating states, and wherein each functional unit comprises a set of memory elements, and wherein state information stored within the set of memory elements of a given functional unit determines the one of the unique operating states in which the functional unit is operating. However, Kurnick further discloses CPM controller loading zero-

deletion state for the corresponding channel along a mask and the input byte into registers {col.7, lines 11–36}. Therefore, it would have been obvious to an artisan to implement state register for storing the state of the functional unit (HDLC framer) as taught by Kurnick to each functional unit (60–72) in Marchok's system with the motivation being to provide maximize transmitting or receiving data to each functional unit {col.9, line 60; table T-11} as if the status/condition of the functional unit is known to avoid overloading at the functional unit.

Regarding claims 4–5:

Marchok does not explicitly does not explicitly disclose a memory unit operably coupled to each of the plurality of functional units, wherein the memory unit includes a separate portion allocated to each of the multiple serial data channels for storing the state information of the functional units.

However, in the same field of endeavor, Kurnick further discloses Dual-port Ram 84 (fig.2)(claim 4). Kurnick discloses a microcontroller (50; fig.2) coupled to each of the plurality of functional units (60–72) and to the memory unit

(dual-port memory), wherein the microcontroller transfers state information between the functional units and the memory unit such that the plurality of functional units operates alternately upon the portions of the multiple serial data channels {col.6, lines 33-56} (claim 5). Therefore, it would have been obvious to an artisan to apply Kurnick's teaching to Marchok's system with the motivation being to ensure the integrity of information transfers by checking the cyclic redundancy status, by providing interrupt channel control and monitoring the status of the hardware which detects a free token with the correct priority.

7. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurnick (5,721,726) in view Marchok (6,118,758).

Regarding claim 14:

Kurnick (5,991,817) discloses a serial communication system,
comprising:

an interface unit (74) adapted for coupling to a transmission medium (54), wherein the interface unit is configured to receive a receive serial data

stream including alternating portions of multiple serial data channels from the transmission medium and to provide the receive serial data stream;

a serial communication controller (24, fig.2) coupled to receive the clock signal and the receive serial data stream, wherein the serial communication controller comprises a plurality of functional units (60-72) configured to operate in series according to a serial communication protocol, and wherein each functional unit is configured to perform a different specific function of said serial communication protocol, and wherein the plurality of functional units operates alternately upon the portions of the multiple serial data channels of the receive serial data stream to perform said serial communication protocol on the multiple serial data channels {col.6, lines 34-56}.

Kurnick does not explicitly disclose a timing recovery unit coupled to receive the receive serial data stream from the interface unit, wherein the timing recovery unit is configured to produce a clock signal derived from the receive serial data stream and to provide the receive serial data stream.

However, in the same field of endeavor, Marchok (6,118,758) discloses a timing and control block 140 {col.6, line 65 to col.7, line 1}. Therefore, it would have

been obvious to an artisan to apply Marchok's teaching to Kurnick's system with the motivation being to provide timing and control signals required to coordinate the operation of the functional units.

Regarding claim 15:

Kurnick further discloses wherein the serial communication controller (24) is further configured to produce a transmit serial data stream including alternating portions of multiple serial data channels {col.6, lines 33-46}, and wherein the interface unit (74) is coupled to receive the transmit serial data stream and further configure to drive the transmit serial data stream upon the transmission medium (28){fig.2, Kurnick}.

Regarding claim 16:

Kurnick further discloses wherein the serial communication controller (24) is adapted for coupling to a host processor (22){fig.1, Kurnick}.

8. Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurnick (5,721,726) in view Rowett (5,991,817).

Regarding claim 6:

Kurnick (5,721,726) discloses a serial communication controller (fig.2) for transmitting and receiving a serial data stream including alternating portions of multiple serial data channels (90, 92), comprising:

a plurality of functional units (60-72) each configured to perform a specific function of a serial communication protocol {col.6, lines 4-5}, wherein each functional unit is a state machine having a set of unique operating states (i.e., transmitting or receiving state),

a memory unit (84) including a separate portion allocated to each of the multiple serial data channels for storing the state information of the functional units; and

microcontroller (50) coupled to each of the plurality of functional units and to the memory unit, wherein the microcontroller is configured to transfer state information between the plurality of functional units and the memory unit

such that the plurality of functional units operates alternately upon the portions of the multiple serial data channels;

wherein different state information (transmitting state or receiving state; col.6, lines 52–54; col.7, lines 3–10) is transferred for each serial data channel depending on which serial data channel's portion is being operated on by the plurality of functional units.

Kurnick does not explicitly disclose wherein each functional unit comprises a programmable state register, and wherein state information stored within the state register of a given functional unit determines the one of the unique operating states in which the functional unit is operating. However, in the same field of endeavor, Rowett (5,991,817) discloses SCC comprising (TX status 139). Therefore, it would have been obvious to an artisan to apply Rowett's teaching to Kurnick's system with the motivation being to associate status from the SCC on the terminal of packet transmission with the appropriate descriptor.

Regarding claims 7–9:

Kurnick does not explicitly disclose the claimed features. However, in the same field of endeavor, Rowett further discloses a time slot assigner group (TSA 46) coupled to the microcontroller, wherein the time slot assigner group (TSA 46) includes clocking circuitry (143, 149; figs.16-17) and keeps track of which of the multiple serial data channels is active (in 145, 152, 141, 150){claim 7}; The time slot assigner group (TSA 46) produces an output signal (wherein the output signal read on assigned a time slot which is generated by TSA 46) indicating which of the multiple serial data channels is active, wherein the microcontroller (CPU 90) receives the output signal and performs the state information transfers in response to the output signal {claim 8}; Rowett further discloses that the time slot assigner group (TSA 46) includes an active time slot register (SCC register 146), and wherein the contents of the active time slot register indicate which of the multiple serial data channels is active, and wherein the microcontroller (CPU 90) reads the active time slot register and performs the state information transfers dependent upon the contents of the active time slot register {claim 9}. Therefore, it would have been obvious to an artisan to apply Rowett's teaching to Kurnick's system with the motivation

being to maximize the assigning time slot process for not selecting the inactive portion of channel which is already assigned to a functional unit.

Regarding claim 10:

Kurnick further discloses wherein the plurality of functional units (60–72), the memory unit (dual–port RAM), the microcontroller (50), and the time slot assigner group (TSA–76 in Kurnick with modification of TSA 46 in Rowett) are formed upon a single monolithic semiconductor substrate {fig.2, Kurnick}.

Regarding claim 11:

Kurnick (5,721,726) discloses a method for transmitting and receiving a serial data stream including alternating portions of multiple serial data channels (90, 92), comprising:

providing a plurality of functional units (60–72) each configured to perform a specific function of a serial communication protocol upon the portions of the multiple serial data channels {col.6, lines 3–5, 38–43}, wherein

each functional unit is a state machine having a set of unique operating states

(i.e., transmitting state or receiving state; col.6, lines 52-56), and

transferring state information between the plurality of functional units
and a memory unit such that the plurality of functional units operates
alternately upon the portions of the multiple serial data channels {col.6, lines
33-43};

wherein different state information is transferred for each serial data
channel depending on which serial data channel's portion is being operated on
by the plurality of functional units {col.6, lines 38-43}.

Kurnick does not explicitly disclose that wherein state information stored
within a given functional unit determines the one of the unique operating states
in which the functional unit is operating. However, in the same field of
endeavor, Rowett (5,991,817) discloses SCC comprising (TX status 139).
Therefore, it would have been obvious to an artisan to apply Rowett's teaching
to Kurnick' system with the motivation being to associate status from the SCC
on the terminal of packet transmission with the appropriate descriptor.

Allowable Subject Matter

9. Claims 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is 703-305-0093. The examiner can normally be reached on Monday-Friday from 10:00 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 703-308-6602. The fax phone numbers for the organization where this application or proceeding is


assigned are 703-872-9314 for regular communications and 703-872-9314
for After Final communications.

Any inquiry of a general nature or relating to the status of this application
or proceeding should be directed to the receptionist whose telephone number
is 703-305-4700.

PN

Phuongchau Ba Nguyen
Examiner
Art Unit 2665

June 29, 2003


6/29/03